USDA Service Center Initiative
Geospatial Data Acquisition, Integration and Delivery
Business Re-engineering Project

Data Themes - Outline – FEMA Q3 Flood Hazard Data

I. Acquisition

A. Data Source

1. Producer Information

a. Name

The Federal Emergency Management Agency -- FEMA-- is an independent agency of the federal government, to the President

b. Location of Headquarters

Federal Emergency Management Agency
Federal Center Plaza
500 C. Street S.W.
Washington, D.C. 20472

c. Internet Address

http://www.fema.gov

2. Publisher Information

a. Name

FEMA

b. Location of Headquarters

Federal Emergency Management Agency
Federal Center Plaza
500 C. Street S.W.
Washington, D.C. 20472

c. Internet Address

http://www.fema.gov

3. Acquisition Information

a. Delivery Media

Digital Q3 Flood Data. Digital Q3 Flood Data are now available on CD-ROM for more than 1,250 counties. You may order the CD-ROM's by calling the Map Service Center.

b. Download URL

Not Applicable 6/2/99

c. Projected Data Availability Schedule

To find which communities are available and the corresponding CD # check the Availability Listing of Q3 Counties.

http://www.fema.gov/msc/states.htm

Status map of available Q3 Counties.
http://www.fema.gov/msc/statemap.htm

B. Standards Information

1. Geospatial Data Standard

a. Standard Name and Steward Information

Information on Q3 data specifications can be found in digital Q3 Flood Data Users Guide. This document is presented in thirteen main parts. Full text can be downloaded from Text (290 KB), WordPerfect 5.1 (462 KB), Encapsulated PostScript (1,687 KB).

b. Standard Version

February 26, 1999

c. Standard URL

http://www.fema.gov/msc/q3users.htm

2. Metadata Standard

a. Standard Name and Steward Information

Metadata Standard Name: Content Standards for Digital Geospatial Metadata
Metadata Standard Version: 19940608

b. Description of Metadata Captured

The Metadata file contains the following sections and it's supporting information:

Identification Information
Publication date of digital files
State/County Name
Bounding Coordinates
Data Quality Information
All source documents used to create the digital Q3 Flood Data
Spatial Data Organization Information
Object counts (points, lines, and areas)
Spatial Reference Information
Projection
Datum
Entity and Attribute Information
Distribution Information
Metadata Reference Information

c. Metadata Accuracy and Completeness Assessment

C. Acquired Data Structure

1. Geospatial Data Format

a. Format (raster, vector, etc.)

Vector

b. Format Name

ArcInfo coverage

c. Data Extent

Digital Q3 Flood Data are now available CD-ROM for more than 1,250 counties. You may order the CD-ROM's by calling the Map Service Center. All counties available for a single State are on one CD-ROM; however, some CD-ROM's may have more than one State, while Florida, New York, and Pennsylvania are on two separate CD-ROM's.

d. Horizontal and Vertical Resolution

The specifications for the horizontal control of Q3 Flood Data files are consistent with those required for mapping at a scale of 1:24000.

The Q3 Flood Data polygon coverages will be delivered and maintained in FEMA's SFHA Data Library in double precision format using decimal degrees geographic coordinates horizontally referenced to the North American Datum of 1927 (NAD27). Polygon definition is limited to no more that 3000 points per polygon. Polygons of greater size are split into smaller areas. The tolerances for data in this format in Decimal Degrees as follows, with their approximate distance in meters noted:

DangleLength	0.000000	0.0m
FuzzyTolerance	0.000009	1.0m
Weedtolerance	0.000009	1.0m
Graintolerance	0.000018	2.0m
Editdistance	0.000137	15.0m
Nodesnap	0.000018	2.0m
Arcsnap	0.000009	1.0m

e. Nominal Scale

1:24,000.

f. Horizontal and Vertical Datum

The reference data is North American Datum of 1927 (NAD 27).

g. Projection

The file is georeferenced to earth's surface using geographic projection and decimal degree coordinate system.

h. Coordinate Units

Decimal degrees.

i. Average Data Set Size

County mosaics of FIRM panels vary in size with complexity of the data and range between .2 to 3 megabytes

j. Symbology

None

2. Attribute Data Format

a. Format Name

ArcInfo coverage

b. Database Size

(Included in size of geospatial)

3. Data Model

a. Geospatial Data Structure

ArcInfo Coverage

b. Attribute Data Structure

Info Attribute Table

Area
Perimeter
Femaq3
Femaq3-id
Fips
Community
Firm_Panel
Quad
Zone
Floodway
Cobra
Sfah
Symbol
Panel_typ
REDEFINED ITEMS
St-fips
Co-fips
State
Pcomm
Panel
Lat
Long
Quad_unit

c. Database Table Definition

Info Tables

d. Data Relationship Definition

N/A the means for linking the other associated Q3 Flood Data to the coverages is maintained using feature items. The raster quadrangle image naming convention is included as the quad item, and the raster FIRM image naming convention is included as the panel item. Scanning the existing FIRM hardcopy develops digital Q3 Flood Data, vectorizing a thematic overlay of flood risks. Vector Q3 Flood Data files contain only certain features from the existing FIRM hardcopy. Q3 vector data are contained in one single countywide file, including all incorporated and unincorporated areas of a county.

e. Data Dictionary

AREA

Polygon area

PERIMETER

Polygon perimeter

FEMAQ3

Record number

FEMAQ3_ID

Polygon id

FIPS

This item contains the five-digit state and county FIPS code, as defined in the Federal Information Processing Standard Publication 6-4 (FIPS PUB 6-4), published by the National Institute of Standards and Technology. The state and county FIPS codes are further separated by the redefined items ST-FIPS and CO-FIPS.

COMMUNITY

This item contains the four-digit community identification number assigned by FEMA to each community that participates in the NFIP. This number may be found in the title block of each FIRM panel, or in the NFIP Community Status Book.

FIRM_PANEL

This item contains the eleven-digit FIRM panel number. The FIRM panel number is found in the title block of each FIRM panel. The FIRM panel number is further separated into its components by the redefined items STATE, (contains the state FIPS code), PCOMM (for countywide panels this is the county FIPS code plus the letter "C", for community based panels this is the community identification number), and PANEL (the panel number and suffix).

QUAD

This item contains the eight-digit USGS quadrangle identification number. This item identifies the alphanumeric map sheet identifier used by the USGS. The list of values for each state is published by USGS in the State Indexes to Topographic and Other Map Coverage. This item is further separated into its components by three redefined items. They are: LAT (the latitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet), LONG (the longitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet), and QUAD_UNIT (the alphanumeric map sheet identifier used by USGS, A1 through H8).

ZONE

This item contains a representation of the flood hazard zone designator. The flood hazard zones are defined in Table 4: SFHA Zone Definition.

FLOODWAY

This item contains a representation of the floodway type. The floodway types are defined in Table 5: Floodway Area Definition. Floodway, Flowage Easement, and State Encroachment Areas are included in the Q3 Flood Data files if they are portrayed on the source graphic (the FIRM) used for data capture. If they are portrayed on a separate map panel (the Flood Boundary Floodway Map) they will not be digitized at this time.

COBRA

This item indicates whether the area is inside or outside of a designated Coastal Barrier Area or Otherwise Protected Area. Only the extents of the Coastal Barrier Resources Act area boundaries are portrayed in the Q3 Flood Data files. The boundaries between Coastal Barrier Resources Act areas and Otherwise Protected Areas and between areas with different designation dates are not included in the Q3 Flood Data files. Users should refer to the FIRM for such information. The COBRA types are defined in Table 6: COBRA Area Definition.

SFHA

This item indicates whether the area is in or out of the SFHA. It is derived from the area's Zone designation. The SFHA definitions that correspond with each of the Zone types are shown in Table 4.

SYMBOL

This item represents a polygon shade symbol that is unique to the Zone, Floodway and COBRA area definitions. See Table 9. Users should note that in order to replicate these colors, a Q3 Shadeset must be installed.

PANEL_TYP

This item contains a representation of the FIRM panel type. See Table 7: FIRM Panel Type Definition.

f. Data Relationship Definition

N/A the means for linking the other associated Q3 Flood Data to the coverages is maintained using feature items. The raster quadrangle image naming convention is included as the quad item, and the raster FIRM image naming convention is included as the panel item. Scanning the existing FIRM hardcopy develops digital Q3 Flood Data, then vectorizing a thematic overlay of flood risks. Vector Q3 Flood Data files contain only certain features from the existing FIRM hardcopy. Q3 vector data are contained in one single countywide file, including all incorporated and unincorporated areas of a county.

D. Policies

1. Restrictions

a. Use Constraints

None

b. Access Constraints

None

c. Certification Issues

The Q3 Flood Data polygon coverages will be delivered to FEMA's SFHA Data Library only after they have passed the checking routines contained in FEMA's Q3QA Checking Software. The coverages will be delivered accompanied by documentation showing that the coverages have been evaluated and passed.

2. Maintenance

a. Temporal Information

Range of Dates/Times:
Sources that reflect updates effected by Letters of Map Correction (Letter of Map Revision (LOMR), Letter of Map Amendment (LOMA)) were utilized in the preparation of Q3 Flood Data files. These revisions are included in the Q3 Flood Data if they are mappable at the publication scale of the source graphic.

b. Average Update Cycle

Periodic

E. Acquisition Cost

1. Cooperative Agreement

a. Description of Agreement

None

b. Status of Agreement

None

2. Cost to Acquire Data

Cost of reproduction $50.00/cdrom.

II. Integration

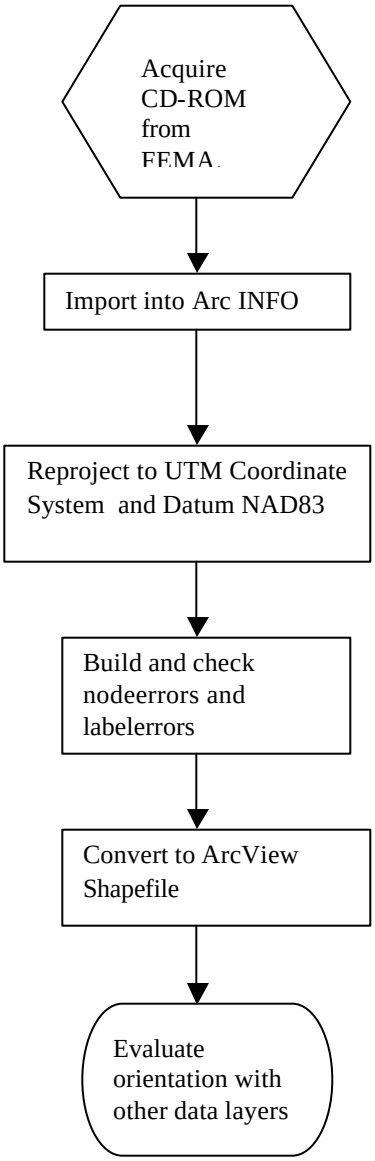
A. Value Added Process

1. Benefit to the Service Center

The digital Q3 Flood Data are designed to provide guidance and a general proximity of the location of Special Flood Hazard Areas. The digital Q3 Flood Data cannot be used to determine absolute delineation of flood risk boundaries, but instead should be seen as portraying zones of uncertainty and possible risks associated with flood inundation. Users must apply considerable care and judgment in the application of this product.

2. Process Model

a. Flow Diagram



b. Process Description

- Obtain CD-ROM from FEMA
- Import data into Arc INFO
- Reproject to UTM Coordinate System and Datum NAD83
- Build and check noderrors and labelerrors.
- Convert to ArcView Shapefile.
- Evaluate orientation with other data layers.

3. Technical Issues

a. Tiling

None

b. Compression

None

c. Scale

1: 24,000.

d. Tonal Matching

None

e. Edge-matching

None

4. Quality Control

a. Procedures

This is to be decided.

b. Acceptance Criteria

This is to be decided.

5. Data Steward

a. Name and Organization

This is to be decided.

b. Responsibilities

This is to be decided.

B. Integrated Data Structure

1. Geospatial Data Format

a. Format (raster, vector, etc.)

Vector.

b. Format Name

ArcView Shapefile

c. Data Extent

County.

d. Horizontal and Vertical Resolution

Same as source data.

e. Absolute Horizontal and Vertical Accuracy

Same as source data.

f. Nominal Scale

Same as source data.

g. Horizontal and Vertical Datum

The horizontal datum is the North American Datum (NAD) 83. The vertical datum is mean sea level.

h. Projection

Universal Transverse Mercator (UTM), North American Datum (NAD) 83.

i. Coordinate Units

Meters

j. Symbology

None

2. Attribute Data Format

a. Format Name

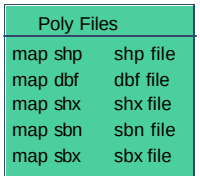
ArcView Shapefile

b. Database Size

.2 to 4 MB

3. Data Model

a. Geospatial Data Structure



b. Attribute Data Structure

Dbase V, as part of an ESRI Shape file. Contains same attributes as source:

Area
Perimeter
Femaq3
Femaq3-id
Fips
Community
Firm_Panel
Quad
Zone
Floodway
Cobra
Sfah
Symbol
Panel_typ
St-fips
Co-fips
State
Pcomm
Panel
Lat
Long
Quad_unit

c. Database Table Definition

Standard .dbf file that goes with shape file.

d. Data Relationship Definition

None. One row in .dbf for each area feature.

e. Data Dictionary

Same as source data.

C. Resource Requirements

1. Hardware and Software

To acquire and integrate one set of Service Center Area Q3 data, a minimum of one UNIX or NT machine with approximately 5-gigabyte of disk is required.

2. Staffing

This is unknown at this time

D. Integration Cost

1. Hardware and Software

To reproject a dataset, a minimum of the following is required:
Arc/Info on UNIX or NT platform
5-gigabyte disk

2. Staffing

This is unknown at this time.

III. Delivery

A. Specifications

1. Directory Structure

a. Folder Theme Data is Stored In

\Service Center Themes
\Fema
\femaq3.shp

2. File Naming Convention

a. List of Theme Files and The File Naming Convention

Not determined for this theme.

B. User Information

1. Accuracy Assessment

a. Alignment with Other Theme Geospatial Data

The data is to be used at a scale of 1:24,000

b. Content

The product has been designed to support planning activities, some Community Rating System (CRS) activities and insurance marketing.

The Q3 Flood Data product has limited application for engineering analysis, particularly for site design, or rating of flood insurance policies for properties located within SFHAs.

2. Appropriate Uses of the Geospatial Data

a. Display Scale

1:24,000.

b. Plot Scale

1:24,000.

c. Area Calculations

As accurate as the source data and capture scale and the algorithm used by ArcInfo/ArcView.

d. Decision Making

As accurate as the source data and capture scale and the algorithm used by ArcInfo/ArcView.

C. Maintenance and Updating

1. Recommendations and Guidelines

a. Frequency of Updates

Update the Service Center data whenever a Q3 data set is updated
Obtain DFIRM data when it becomes available.

b. Location for the Theme Data to be Maintained

Ideally, the data would be downloaded from a FEMA website that does not exist at this time, processed, then stored at the Service Center using the data.

c. Maintenance and Updating Procedures Overview

To be determined.